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<b>13. SUPPLEMENTARY NOTES</b>					
<b>14. ABSTRACT</b> AB: We calculated in-situ and laboratory measurements of sound speed and attenuation in seafloor sediments from the shallow water delta of the Eel River, California. This region receives a substantial volume of fluvial sediment that is discharged annually onto the shelf. Additionally, high input of fluvial sediments during storms generates flood deposits characterized by thin-beds of variable grain-sizes in water depths between 40 and 90 m. Main objectives of this study were (1) to investigate signatures of seafloor processes on geoacoustic and physical properties, and (2) to evaluate differences between geoacoustic parameters measured in-situ at acoustic (7.5 kHz) and in the laboratory at ultrasonic (400 kHz) frequencies. The in-situ acoustic measurements were conducted between the 60 and 100 isobath. Wet-bulk density and porosity profiles were obtained to 1.15 meters below seafloor (mbsf) using gravity cores of the mostly cohesive fine-grained sediments across- and along-shelf. Our physical and geoacoustic property measurements from six selected sites on the Eel margin showed: (1) Sound speed and wet-bulk density strongly correlated.					
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TI: **In-situ Acoustic and Laboratory Ultrasonic  
Sound Speed and Attenuation Measured in  
Heterogeneous Seabed Sediments: Eel Margin,  
California**

AU: \* Gorgas, T J  
EM: tgorgas@soest.hawaii.edu  
AF: T.J. Gorgas, Department of Geology and Geophysics, University of  
Hawaii, 1680 East-West Road, Honolulu, HI 96822 United States  
AU: Wilkens, R H  
EM: Roy.Wilkens@onr.navy.mil  
AF: R.H. Wilkens, Hawaii Institute of Geophysics and Planteology,  
University of Hawai'i, 2525 Correa Road Stennis Space Center, Honolulu, HI  
96822 United States  
AU: Fu, S  
EM: ssfu@soest.hawaii.edu  
AF: R.H. Wilkens, Hawaii Institute of Geophysics and Planteology,  
University of Hawai'i, 2525 Correa Road Stennis Space Center, Honolulu, HI  
96822 United States  
AU: Frazer, N L  
EM: neil@soest.hawaii.edu  
AF: T.J. Gorgas, Department of Geology and Geophysics, University of  
Hawaii, 1680 East-West Road, Honolulu, HI 96822 United States  
AU: Richardson, M D  
EM: mike.richardson@nrlssc.navy.mil  
AF: Mike D. Richardson, Marine Geosciences Division, Naval Research  
Laboratory, Stennis Space Center, Stennis, MS 39529-500 United States  
AU: Briggs, K B  
EM: kevin.briggs@nrlssc.navy.mil  
AF: Mike D. Richardson, Marine Geosciences Division, Naval Research  
Laboratory, Stennis Space Center, Stennis, MS 39529-500 United States  
AU: Lee, H  
AF: H. Lee, Department of Geology and U.S. Geological Survey; Mail  
Stop 999, 345 Middlefield Road, MS 999, Menlo Park, CA 94025 United States  
AB: We calculated in-situ and laboratory measurements of sound speed  
and attenuation in seafloor sediments from the shallow water delta of the Eel  
River, California. This region receives a substantial volume of fluvial sediment  
that is discharged annually onto the shelf. Additionally, high input of fluvial  
sediments during storms generates flood deposits characterized by thin-beds of  
variable grain-sizes in water depths between 40 and 90 m. Main objectives of this  
study were (1) to investigate signatures of seafloor processes on geoacoustic  
and physical properties, and (2) to evaluate differences between geoacoustic  
parameters measured in-situ at acoustic (7.5 kHz) and in the laboratory at  
ultrasonic (400 kHz) frequencies. The in-situ acoustic measurements were  
conducted between the 60 and 100 isobath. Wet-bulk density and porosity  
profiles were obtained to 1.15 meters below seafloor (mbsf) using gravity cores  
of the mostly cohesive fine-grained sediments across- and along-shelf. Our  
physical and geoacoustic property measurements from six selected sites on the  
Eel margin showed: (1) Sound speed and wet-bulk density strongly correlated.  
(2) In most cases, sediment compaction with depth led to increased sound speed  
and density and decreased porosity and in-situ attenuation values. (3) Scattering  
effects due to inhomogeneities caused higher ultrasonic attenuation when

measured in coarse-grained sediments. (4) Sound speed was higher in coarser- than finer-grained sediments on an average by 80  $\text{msec}^{-1}\text{S}$ . (5) In coarse-grained sediments higher sound speed was measured in the laboratory (1560  $\text{msec}^{-1}\text{S}$ ) than in-situ (1520  $\text{msec}^{-1}\text{S}$ ). In contrast, average ultrasonic and in-situ sound speed in fine-grained sediments showed only little differences (both approx. 1480  $\text{msec}^{-1}\text{S}$ ). (6) Higher attenuation was commonly measured in the laboratory (0.4 and 0.8  $\text{dBm}^{-1}\{\text{kHz}\}^{-1}\text{S}$ ) than in-situ (0.02 and 0.65  $\text{dBm}^{-1}\{\text{kHz}\}^{-1}\text{S}$ ), and remained almost constant below 0.4 mbsf. We attributed discrepancies between laboratory ultrasonic and in-situ acoustic measurements to frequency dependence of velocity and attenuation. In addition, laboratory attenuation was most likely enhanced due to scattering of sound waves at heterogeneities that were on the scale of ultrasonic wavelengths, while high in-situ attenuation values were linked to stratigraphic scattering at thin-bed layers that form along with flood deposits.

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TI: **Intricate BSR and Bright Spot distribution of the Yaquina Forearc Basin, Peru**

AU: \* Huebscher, C P

EM: huebscher@dkrz.de

AF: University of Hamburg, Bundesstrasse 55, Hamburg, 20146 Germany

AU: Greinert, J

EM: jgreinert@geomar.de

AF: GEOMAR, Wischhofstrasse 1-3, Kiel, 24148 Germany

AU: Kukowski, N

EM: nina@gfz-potsdam.de

AF: GeoForschungsZentrum GFZ, Telegrafenberg, Potsdam, 14473 Germany

Germany

AU: Pecher, I A

EM: ingo@ig.utexas.edu

AF: University of Texas, 412 Spicewood Springs Rd., Bldg. 600, Austin, tx 78759-8500 United States

AU: Wagner, M

AF: University of Hamburg, Bundesstrasse 55, Hamburg, 20146 Germany

Germany

AU: Bialas, J

EM: jbialas@geomar.de

AF: GEOMAR, Wischhofstrasse 1-3, Kiel, 24148 Germany

AB: In order to study the interaction between BSR occurrence, gas abundance, tectonic uplift, and sedimentation in the Yaquina Basin we carried out a high-resolution reflection seismic survey in the frame of the GEOPECO project (SONNE Leg 146). The Yaquina Basin is located between 8 deg. S and 10 deg. S on the midslope of the Andean Continental Margin. This part of the Peruvian Margin has undergone tectonic uplift and, subsequently subsidence by the oblique subduction of the Nazca Ridge. The seismic lines were tied to the ODP sites of Leg 112, which allows correlation between seismic data and core stratigraphy. We used GI-Gun sources to avoid misinterpretations due to bubble generation. The most striking observations have been made at the widest part of the basin at 8 deg. 30 min. S in water depth of about 900 m. Perpendicular to the slope a bright spot changes abruptly into a weak BSR. Several disrupted bright spots are resolved some 10 ms beneath the BSR, indicating strong vertical